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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
TSOY, ELENA	
ART UNIT	PAPER NUMBER
1762	

DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/857,210	REIHS ET AL.	
	Examiner	Art Unit	
	Elena Tsoy	1762	

-- The MAILING DATE of this communication app ars on the cover sheet with th correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 May 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) __ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Response to Amendment

1. Amendment filed on May 9, 2003 has been entered. Claims 13-31 are pending in the application.

Election/Restrictions

2. Upon Applicants' request Restriction requirement is withdrawn.

Claim Objections

3. Objection to claim 13 because of the informalities has been withdrawn.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Rejection of claim 30 under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention has been withdrawn.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Rejection of claims 13-31 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention has been withdrawn.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Rejection of claims 13, 14, 16, 24, 25, 28, 29 under 35 U.S.C. 102(b) as being anticipated by Tsai (US 5,411,771) has been withdrawn.

10. Rejection of claims 13, 14, 16, 24, 25, 29, 31 under 35 U.S.C. 102(b) as being anticipated by Porter et al (US 4,125,108) has been withdrawn.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. **Claims 13-20, 24, 25, 27, 29-31** are rejected under 35 U.S.C. 103(a) as being unpatentable over Azzopardi et al (US 6,299,981) in view of JP 04168904.

As to claims 14, 24, 25, 27, 29-31, Azzopardi et al disclose a method for producing a hydrophobic and oleophobic anti-contaminating surface on substrates (support material) in particular transparent substrates (See column 1, lines 6-14) such as glass or plastic (See column 3, lines 8-11) comprising mechanically roughening a surface of the substrate to form surface irregularities (See column 4, lines 8-11), then coating the roughened substrate by grafting with a hydrophobic and oleophobic (transparent) film. A grafted fluorosilane film, having a uniform thickness of a few angstroms does not substantially modify the geometry of the underlying textured coating. The sizes of the irregularities, 7 nm and 45 nm, remain measurable, as they do

also in the end-product. See column 5, lines 1-8. The contact angle of obtained surface is 170 degree (ultraphobic) (See column 5, lines 17-18). The method is applicable to various material surfaces such as surface of exterior windows of buildings or the glazing panels used in showers, as to the windows of transportation vehicles (See column 1, lines 57-61).

Azzopardi et al fail to teach that a blasting agent is corundum (Claims 16, 17) with sharp edges (Claims 18) having a particle size of less than 200 microns (Claim 13) or less than 130 microns (Claim 15), a blasting is carried out at pressure is 3-7 bar and at a distance from the die head to the surface of 1-3 cm (Claim 19) for 0.1-10 min/cm^2 (Claim 20).

As to claims 13, 15-18, JP 04168904 teaches that corundum having a particle size of 60-300 mesh (250-50 microns) is suitable for blasting a surface to form surface irregularities in the range of 0.5-50 microns (See Abstract).

It is held that the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945). See also In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960) (selection of a known plastic to make a container of a type made of plastics prior to the invention was held to be obvious); Ryco, Inc. v. Ag-Bag Corp., 857 F.2d 1418, 8 USPQ2d 1323 (Fed. Cir. 1988).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used corundum (including corundum having sharp edges) having a particle size of 60-300 mesh (250-50 microns) instead of sand for roughening a substrate surface in a method of Azzopardi et al since JP 04168904 teaches that corundum having a particle size of 60-300 mesh (250-50 microns) is suitable for blasting a surface to form surface irregularities in the range of 0.5-50 microns.

As to claims 19, 20, one of ordinary skill in the art at knows that pressure, time and distance are result-effective parameters in a surface roughening process.

It is held that it is not inventive to discover the optimum or workable ranges of result-effective variables by routine experimentation. In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). See also In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the optimum values of the relevant blasting parameters (including those of claims 19 and 20) in a method of Azzopardi et al in view of JP 04168904 through routine experimentation depending on particular application in the absence of a showing of criticality.

13. **Claims 13-20, 24-31** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa et al (US 5,324,566) in view of JP 04168904.

As to claims 14, 24-31, Ogawa et al disclose a method for producing a hydrophobic and oleophobic anti-contaminating surface (See column 1, lines 11-13; column 11, lines 66-68) on metal, glass, ceramic or plastic as a substrate (support material) (See column 12, lines 7-12) comprising roughening a surface of the substrate with sand blasting to form surface irregularities of 0.1-1.0 microns (See column 9, line 62; column 24, lines 51-56), then coating the roughened substrate with a hydrophobic and oleophobic monomolecular (transparent) film having thickness of about 15 angstroms (See column 25, lines 10-19). The method is applicable to various material surfaces (See column 13, lines 1-6) such as surface of vehicle parts (See column 14, lines 22-40), building materials, e.g. roof (See column 14, lines 46-54).

The Examiner Note: the a hydrophobic and oleophobic monomolecular film forms ultraphobic surface since according to Applicants ultraphobic surface is defined as a surface of

substrate having irregularities coated a thin hydrophobic and/or oleophobic coating which does not smooth the surface irregularities.

Ogawa et al fail to teach that a blasting agent is corundum (Claims 16, 17) with sharp edges (Claims 18) having a particle size of less than 200 microns (Claim 13) or less than 130 microns (Claim 15), a blasting is carried out at pressure is 3-7 bar and at a distance from the die head to the surface of 1-3 cm (Claim 19) for 0.1-10 min/cm^2 (Claim 20).

As to claims 13, 15-18, JP 04168904 teaches that corundum, silica sand having a particle size of 60-300 mesh (250-50 microns) can be used for blasting a surface to form surface irregularities in the range of 0.5-50 microns (See Abstract). In other words, corundum is functionally equivalent to silica sand for roughening the surface.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used corundum (including corundum having sharp edges) having a particle size of 60-300 mesh (250-50 microns) instead of sand for roughening a substrate surface in a method of Ogawa et al since JP 04168904 teaches that corundum, silica sand having a particle size of 60-300 mesh (250-50 microns) can be used for blasting a surface to form surface irregularities in the range of 0.5-50 microns, and the selection of any of these known material as a blasting agent in Ogawa et al would be within the level of ordinary skill in the art.

As to claims 19, 20, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the optimum values of the relevant blasting parameters (including those of claims 19 and 20) in a method of Ogawa et al JP 04168904 through routine experimentation depending on particular application in the absence of a showing of criticality.

14. **Claims 21, 22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Azzopardi et al (US 6,299,981) or Ogawa et al (US 5,324,566) in view of JP 04168904, as applied above, and further in view of Li et al (US 5,751,541).

Azzopardi et al/Ogawa et al in view of JP 04168904 fails to teach that the roughened surface is coated with a thin layer of noble metal such as gold as adhesion promoter layer (Claims 21, 22).

Li et al teach that it is well known in the art that coatings of some materials could be successfully fabricated only on noble metal substrates, such as platinum, or gold, and could not successfully be made on non-noble metal substrates because the resulting films yielded poor adhesion and high resistance (See column 1, lines 32-43).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a layer of gold as an adhesion promoting layer in a method of Azzopardi et al/Ogawa et al in view of JP 04168904 depending on a material of coating to be adhered with the expectation of providing the desired improved adhesion of the coating, as taught by Li et al.

15. **Claim 23** is rejected under 35 U.S.C. 103(a) as being unpatentable over Azzopardi et al (US 6,299,981) or Ogawa et al (US 5,324,566) in view of JP 04168904 and Li et al (US 5,751,541), as applied above, and further in view of Gesing et al (US 3,867,203).

Azzopardi et al/Ogawa et al in view of JP 04168904 and Li et al, as applied above, fail to teach that the roughened surface is coated with a thin layer of noble metal as adhesion promoter layer by precipitation.

Gesing et al teach that a gold layer can be uniformly deposited over entire substrate surface by precipitation from a diluted gold solution (See column 5, lines 1-5).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have deposited a thin layer of gold onto a substrate surface in a method of Azzopardi et al/Ogawa et al in view of JP 04168904 and Li et al by precipitation from a diluted gold solution with the expectation of providing the desired uniform covering of the entire substrate surface, as taught by Gesing et al.

Response to Arguments

16. Applicant's arguments with respect to claims 13-31 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is (703) 605-1171. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Elena Tsoy

Elena Tsoy
Examiner
Art Unit 1762

July 11, 2003